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LITERATURE IN BRIEF

Child and Adolescent Health

Hambidge SJ, Davidson AJ, Phibbs SL, et al. Strategies to improve immunization rates and well-child care in a disadvantaged population. A cluster randomized controlled trial. *Arch Pediatr Adolesc Med* 2004;158:162–169.

SUMMARY

This study sought to evaluate whether a set of interventions would improve immunization rates and well-child visit (WCV) rates in clinics serving disadvantaged children. The study design called for 11 clinics that were part of an integrated inner-city health care system (Denver Health, Colorado) to be randomly assigned to one of three study groups: WCV intervention (three clinics), immunization intervention (four clinics), and controls (four clinics). Immunization status and number of WCVs at age 12 months were measured for 2,665 infants, who were 94% of a 1-year cohort born at Denver Hospital Medical Center (also part of Denver Health) and given appointments to one of the clinics according to the family's site of residence. Interventions were (1) patient based: recalls, reminders, patient education materials, transportation assistance, home visits for missed appointments, and the like; (2) clinic-based: chart annotation, AFIX system (assessment, feedback, incentives and exchange of information), staff education, literature review, and the like; and (3) system-based: flags in WIC (Women, Infants, and Children) program, computerized immunization registry, automated recall postcards, and so on.

At the WCV and immunization intervention sites, respectively 76% and 77% of the infants at 1 year were found to be up-to-date with immunizations, compared to 71% at the control clinics. For WCVs, 57% and 58% of infants at intervention clinics had received four visits or more, compared to 50% at the control sites. These trends were not statistically significant. Data were also collected on emergency service, inpatient utilization, and charges for all infants in the study clinics. Again, no significant differences were found between the interventions and controls.

COMMENTARY

A first reaction to these results would be to observe that a great deal of effort was expended for a rather small improvement, but then to draw the conclusion that the kinds of interventions devised for these clinics are mostly ineffective would probably be a mistake. In fact, this study was conducted from mid-1998 into mid-2000 at a time when, as a result of public health initiatives, at least some components of the interventions had been in widespread use, and immunization rates in general were going up. In 1997, the baseline data on up-to-date immunization for 1-year-olds in all 11 of these clinics had ranged from 49% to 59%. Moreover, one of the control clinics had an unrelated AFIX intervention under way at the time of the study. In the same vein, the authors' conclusion that these methods, which were shown to be effective in some other settings, may be less so for a population of disadvantaged children seems unduly pessimistic. The 77% up-to-date rates are encouraging regardless of the small difference from the controls.

Nevertheless, the menu of interventions applied in this study was so extensive that it inevitably leads to the thought that perhaps the time has come for research that will begin to compare more carefully the various interventions with each other. We would probably be able to accept small gains in rates more readily if they resulted from a more modest intervention.

Although understandable, it is disappointing that the test of the interventions could not have been continued through the second year of life. Mothers who are reasonably reliable about bringing their infants for care tend to become less so after the first birthday, and this change in behavior might have provided an additional opportunity to demonstrate a difference between the intervention and control clinics.

It is worth noting that the investigators used a systemwide immunization registry as well as medical records to collect immunization data. They stated that the registry had been shown to be more accurate than their conventional medical records. For more about registries, see the summary for the Glazner et al. article, next.

Glazner JE, Beaty BL, Pearson KA, Lowery NE, Berman S. Using an immunization registry: effect on practice costs and time. *Ambul Pediatr* 2004;4:34–40.

SUMMARY

Recognizing that, although the numerous useful features of immunization registries have been accepted and adopted in the public health sector, there is a continuing perception among private providers that using a registry is an added cost and burden to their practices, these investigators set out to compare the costs and times for immunization-related activities for practices in various settings (rural family practices, community health centers, public health agencies, and urban pediatric practices) before a regional registry was developed and after it was in full use. A lengthy and complete list of physician, nursing, registry and nonroutine activities associated with provision of immunizations was prepared, and the time spent on each action was documented by staff in each setting for at least 50 immunizations given during specified time periods, both pre- and postregistry.

The authors used the data collected for time spent to impute costs, using inflation-adjusted salary and benefit figures, and ultimately arriving at an average cost per immunization. Information was obtained for 1,335 shots preregistry and 2,244 postregistry. Cost per immunization rose from $4.37 to $4.93 in the private practices and community health centers and from $3.79 to $4.17 in the public health agencies for increases of $0.56 and $0.38, respectively. Time spent changed from 13.8 minutes per shot to 12.2 minutes in the practices and health centers and from 9.5 to 15.7 in the public health agencies for differences of −1.6 minutes and +6.2 minutes, respectively.

Computerized simulations of outcomes after varying costs and times were performed to compensate for the small number of practices in the real world study. The results produced were very similar. The authors considered that the cost increases, which were affected by salary increases above inflation as well as changes in personnel titles, were less reflective of registry use than were the time changes, which were calculated from direct measurements of all immunization activities. The increase in time for public health agencies was mainly attributed to their continued use of paper records along with registry files.

COMMENTARY

Among the many challenges of implementing citywide or statewide immunization registries has been the reluctance of private practitioners to participate. At first, it was offices without computers, then it was incompatible software, and always it has been cost, inconvenience,

and perceived lack of benefit. But, registries can only achieve their full benefit to providers, individually and collectively, if their files capture all or nearly all of the immunization records in the region. The unfortunate result of lack of participation by some physicians is to cause the registry to be less useful to the physicians who do participate. This is a classic example of the opposition between the needs of the individual and the needs of the community that plays out in so many ways in our society.

The good news is that, as registries are improving their operations and more practitioners are recognizing the value of accessing automated records, there is slow but definite progress toward increased participation. Information about time and cost can be especially convincing to the doubtful. The detailed time study form developed for the research summarized here would be an excellent template for use in similar studies elsewhere when evidence is needed to persuade those who are hesitant to join a registry. Perhaps the positive set of findings in this report will itself find a wide enough audience to help further the progress toward expanded registries.

Moore T, Kotelchuck M. Predictors of urban fathers' involvement in their child's health care. *Pediatrics* 2004;113:574–580.

SUMMARY

Moore and Kotelchuck noted that there is good evidence the involvement of fathers in their children's care is associated with better developmental and behavioral outcomes for the child. Although health and medical care are considered one element of paternal involvement, when it comes to preventive health care, few studies have examined the extent of fathers' involvement and the factors that may affect it. To learn more about this question, structured interviews were conducted with 108 English-speaking fathers of children younger than 7 years; the fathers were recruited from urban hospital and community primary care sites (83%) and neighborhood settings nearby (17%). Information was collected on the number of well-child visits (WCVs) attended, if any, for an index child, demographic variables, fathering behaviors, and a number of possible barriers and motivators for attendance.

Fathers' median age was 35.0 years. They were predominately black (86%) and employed (87%). There were 68% who lived with the index children, whose median age was 38.5 months. The sample split naturally into high attenders (40% or more of recommended WCVs for their child) and low attenders (<40% of WCVs). High attenders constituted 47% of the sample. The median number of visits attended by all fathers was 3, and 11% had never attended a WCV.

The most common barriers to attendance mentioned were work related. For most of the men, motivators to attend were personal interest in their child's life and family encouragement. Five factors were statistically significantly associated with high attenders on both bivariate and multivariate analysis: older age of the father, presence of father at delivery, younger age of the child, having more than one child, and the child's having health insurance.

COMMENTARY

As its name suggests, the field of maternal and child health (MCH) has paid little attention to men. In response, some circles have moved toward calling the field *family health*, but the fear persists that any shift in emphasis will detract from the consideration of mothers and children as a vulnerable population. The unfortunate result is that fathers and adolescent males in particular have often received short shrift from MCH professionals in research, policy work, and programs. Thus, a study like this one is welcome in spite of the limitations of the

sampling method and sample characteristics. All other considerations aside, it is striking that 89% of these fathers had attended at least one WCV, and a large proportion had attended several. Although the results might have been different in a truly random sample rather than the convenience sample reported here, at least this one group of inner-city, minority men who did not always live with their child had a salutary involvement with their young ones.

The study's inclusion of the interviewee's responses to a list of almost 22 potential barriers and about 18 potential motivators for attendance at WCVs is a thoughtful and useful feature. Although the results are too lengthy to summarize here, a closer look at the details would repay any MCH provider or pediatrician who wishes to encourage the involvement of fathers in preventive health care for their children.

Underlying this study (and the commentary) is the basic assumption that fathers' attendance at WCVs is a good thing. Viewed as merely one aspect of the broad spectrum of paternal behavior, it undoubtedly is a good thing. Nevertheless, more specific questions deserve to be asked. After the father does make it to the doctor's office or clinic, what happens then? Is he satisfied? Does he learn anything? Is there growth or change in his child-rearing attitudes and skills? And, most challenging of all: What effect does his attendance have on the development and behavior of his child? Perhaps this is more than we can hope to find out. Even for mothers, the answers are incomplete. Until they are forthcoming, we will have to continue, as we have before, to proceed on faith.

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